

half of the month than in the first half. Twelve stations, 8 of which are in Illinois, reported 2.50 inches or more in a 24-hour period.

**Snowfall.**—One of the heaviest April snowstorms on record for eastern Iowa, northern Illinois, and southern Wisconsin prevailed on the 17th and 18th. Upward of 12 inches fell over some areas and the snow was so wet and heavy that considerable damage was caused. Limbs were broken off trees, and telephone and telegraph companies suffered. The average snowfall for the district was 1.6 inches, and the greatest monthly amount, 14.5 inches, occurred at Galva in northern Illinois.

#### MISCELLANEOUS.

The prevailing wind direction was southwesterly, but in the Northern States it was northwesterly. The highest velocity was 48 miles an hour from the south, at Springfield, Ill., on the 25th in connection with a wind storm that caused about \$25,000 damage at that place. This equals the highest previous velocity at that station.

The percentage of the possible amount of sunshine was above the normal by about 5 per cent, the average being about 65 per cent. There was remarkable uniformity in the number of clear, partly cloudy, and cloudy days in the various parts of the district, the average of which was 12, 8, and 8, respectively. The average number of days with 0.01 inch or more precipitation was eight.

#### RIVERS.

High stages prevailed in most of the rivers and streams in the southern part of the district all the month. The Mississippi River was above flood stage early in the month from Keokuk, Iowa, southward. At Hannibal, Mo., the flood stage lasted to April 16, and the stage reached, 19 feet, is the highest since June, 1903. But little damage resulted at that point. The flood at Cairo, Ill., will be fully described in a special bulletin to be issued later by the Weather Bureau. Flood stages were not reached in the Mississippi River from the Davenport district northward. At the close of the month the gage readings in that district were from 2 to 5 feet lower than those reached at the time of the crest of the rise early in the month. On the 3d and 4th the ice in the Mississippi at Dubuque, Iowa, gorged at the Dubuque drawbridge, necessitating the use of dynamite. On the 3d the sheer boom was carried down stream, but lodged on the east side of the river and was recovered. The Illinois River at La Salle and Beardstown, Ill., was above flood stage throughout the month, but no damage was reported. The improved stage of water in the rivers of Minnesota was of benefit in supplying the mills with logs.

#### TORNADIC STORMS IN ILLINOIS.

By CLARENCE J. ROOT, Section Director.

In the late afternoon of April 21 severe and destructive tornadic storms occurred at a number of places in Illinois. There were two principal storm areas, one in the northeast part of the State and another in the south end. The distance between these two areas is about 225 miles. The reports received at this office from authentic sources place the number of dead at 18, but it is probable that all deaths have not been reported. The newspaper estimates were too high. A great many persons were injured and hundreds were rendered homeless. The property loss is probably near a million

dollars. The northern storm area covers the region extending from LaSalle and Livingston counties eastward into Indiana. An effort was made to trace a storm track, but the times given for the reports, together with the fact that so wide an area was covered, would seem to indicate that there were a number of storms operating at the same time. Reports were received from eleven parties in this district. They all agree that the storm moved in a direction north of east, that the cloud had a funnel-shaped pendant, that the storm was accompanied by rain and hail, and that there was a loud, roaring noise. The width of the paths was given from 100 feet to 1,300 feet. Some observers state that the trees fell in all directions, while others claim that they lay to the east. The losses reported are as follows: Grundy county, \$100,000; Kankakee county, \$300,000; Dwight, \$25,000; Martinton, \$10,000; Chatsworth, \$40,000. Two lives were lost in Kankakee County (Mrs. D. W. Jay and Mrs. Robert Hawkins) and three near Campus (Wilson Hulse, wife, and baby). Mr. E. G. Cryder, cooperative observer, Morris, Ill., says: "I viewed the path of this storm and the destruction was very severe. Some of the farms did not have a building left. At one place it pulled up 40 rods of wire fence. Did not leave a post standing." Mr. E. O. Welch, cooperative observer at Dwight, Ill., reports as follows: "There was no marked indication of the approaching storm at 3 p. m., but shortly after thunder was heard in the southwest increasing in volume, and at 4.10 rain began falling in a spasmodic sort of a way, with some hail. At 4.30 heavy rain was falling accompanied by large hailstones, weighing from 4 to 6 ounces, of a flat appearance and seemed to be formed by the freezing together of 10 or more smaller ones. At this time a black cloud was seen in the southwest about 2 miles from town, and it is said by those who saw it at this time to have had a funnel-shaped pendant. When I saw it myself three or four minutes later it resembled a huge column reaching from the earth to the clouds which hung very low, and appeared to be about 50 feet in diameter and was moving east-northeast, making a path about 80 rods wide. Much damage was done 2 miles south, and 3 miles southeast, two houses were entirely destroyed, a number of others badly damaged, together with outhouses and corncribs and some stock. Loss probably \$25,000 or \$30,000. Sixty-four hundredths of an inch of rain fell, most of it in about 20 minutes. At 4.50 p. m. the sun was shining. No loss of life in this immediate vicinity." The storm in Dewitt County is reported by J. F. Ziegler, cooperative observer: "The greatest damage was done near Salt Creek south of Clinton, but the storm seemed to raise and strike at times in different places. It was first reported near Rowel, 4 miles southwest of the above-mentioned place, but no great damage was done there, then at Clinton, and lastly 2 miles farther northeast, where it destroyed a building within 100 feet of my instrument shelter. The storm here (at the last place) was not as strong, or perhaps there was less in its path to show its strength."

#### TORNADO AT MURPHYSBORO AND BUSH, ILL., APRIL 21, 1912.

By Prof. F. H. COLYER, Cooperative Observer, Carbondale, Ill.

The storm, as a destructive one, started 3 miles north of Murphysboro, Ill., and moved slightly northeastward, about 15° to 20° north of east. In this track the funnel cloud zigzagged more or less. From reports and actual visitation I could trace the storm path something